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*The* Greatest Work  
of  
Sir Francis Bacon  
Baron of Verulam  
Viscount St. Alban

J. A. POWELL



Riverbank Laboratories  
Geneva, Illinois



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# The Great Work: Its Discovery

The theory of the existence of ciphers in English printed works of the sixteenth and seventeenth centuries has been very widely entertained. The number of those who have made more or less intelligent attempts to find a clew to, or a solution for the cipher, the presence of which they instinctively suspected, has been very great. With the majority of these the imagination has run riot, and the most fantastic anagrams, acrostics, and word puzzles have been gravely offered by these self-styled "discoverers." Without training, without method, and with nothing but a suspicion as a basis for their work, they have erected their own theory and have deliberately culled this fact and that fancy and placed them in a false setting which they have termed "proof." The utter absence in this mass of ingenious nothings of anything of serious literary or historical value has produced the inevitable result of more or less tolerant contempt and even of active prejudice on the part of scholars and students of literature, who might otherwise have been disposed to approach the subject with an open or receptive mind.

Others there are who have seriously addressed themselves to the problem of ascertaining whether or not, in a given work, the cipher really existed; what its character might be; what the method of its solution, and what message it conveyed. In the few cases where the results have appeared to have been reached by scientific methods an impartial investigation has usually resulted, either in dissipating the claim made, or in discrediting the methods followed in the alleged decipherment. In all such cases speculation proved to have formed the ground work on which the theory was built, and neither the theory nor the results could stand the analytical tests of scientific scholars. Mere belief in a theory, however honest and however strong it may be, can of itself lead to nothing of scholarly value. The essential element of all productive research is the possession of a theory for which there is a basis of fact—not an effort to adapt the facts to clothe a theory.

The effort, the imagination, and the ingenuity which have been expended in the attempts to establish the existence of one or the other of the

various ciphers claimed, at various times, to have been discovered in these old works, constitute a remarkable exhibition of instinct—gone astray. That the facts forming the starting point in the investigation of this subject and lying right at hand, and forming a sign post pointing to the right direction have been overlooked by investigators of scholarly training and able minds, only goes to show that the most obvious facts are often neglected for those more remote and more difficult of approach.

In his work, *De Augmentis Scientiarum* (translated into English, under the title: “On the Advancement of Learning”), Sir Francis Bacon, in the chapter devoted to ciphers, says:

Let us proceed then to Ciphers. Of these there are many kinds: simple ciphers; ciphers mixed with non-significant characters; ciphers containing two different letters in one character; wheel-ciphers; key-ciphers; word-ciphers; and the like. But the virtues required in them are three: that they be easy and not laborious to write; that they be safe, and impossible to be deciphered; and lastly that they be, if possible, such as not to raise suspicion. For if letters fall into the hands of those who have power either over the writers or over those to whom they are addressed, although the cipher itself may be safe and impossible to decipher, yet the matter comes under examination and question; unless the cipher be such as either to raise no suspicion or to elude inquiry.

But for avoiding suspicion altogether, I will add another contrivance, which I devised myself when I was at Paris in my early youth, and which I still think worthy of preservation. For it has the perfection of a cipher, which is to make anything signify anything; subject however to this condition, that the infolding writing shall contain at least five times as many letters as the writing infolded; no other condition or restriction whatever is required. The way to do it is this: First let all the letters of the alphabet be resolved into transpositions of two letters only. For the transposition of two letters through five places will yield thirty-two differences; much more twenty-four, which is the number of letters in our alphabet. Here is an example of such an alphabet.

A	aaaaa	N	abbaa
B	aaaab	O	abbab
C	aaaba	P	abbba
D	aaabb	Q	abbbb
E	aabaa	R	baaaa
F	aabab	S	baaab
G	aabba	T	baaba
H	aabbb	V	baabb
I	abaaa	W	babaa
K	abaab	X	babab
L	ababa	Y	babba
M	ababb	Z	babbb



To Elizabeth Wells Gallup, a deeply read student of English literature, to whom belongs the enduring credit of discovering the existence and the solution of the Baconian Biliteral Cipher, these suggestions of Sir Francis Bacon came with the same effect as does a bright light to one who has lost his way in the dark night. The subject of ciphers, as said to have been used in the sixteenth and seventeenth centuries, had long been for her a fascinating object of speculation and conjecture and reading. But with no solid ground on which to stand she had with the true instinct of the research student carefully held her imagination in check and refrained from allowing herself to take more than an academic interest in a subject already discredited by theorists and dreamers. In the face of the Baconian passage however, she found herself in possession of a positive declaration—a fact on which to base experimental research, a clew which, if intelligently and skillfully followed, might lead to the long-hidden treasure.

Careful study of Bacon's own declaration gave her the following principles on which to regulate her future procedure:

1.—That Bacon had himself devised a cipher consisting of varying combinations of *a* and *b* in a group of five for each letter of the alphabet (see page 4).

2.—That Bacon had himself made use of this cipher.

3.—That Bacon had applied the use of the cipher to *italic* type.

4.—That the cipher consisted of the use of two forms of type, similar in general appearance, but with inherently distinct characteristics, distinguishable only on close examination.

5.—That Bacon designated the two forms of type by the letters *a* and *b*.

6.—That the fundamental principle of Bacon's so-called Biliteral Cipher lay in causing each letter of the printed page to be set up from either the *a* or the *b* form of type, as might be needed to form a group of five represented in the code, each such group of five letters on the printed page constituting one letter of the message concealed therein.

7.—That in *deciphering* (i. e. in extracting the hidden message from the printed page) it would first be necessary: (1) to determine the presence in the printed page of two closely similar but inherently different forms of type, (2) to ascertain which form was regarded by the author of the cipher as the *a* form and which as the *b* form, and (3) after assigning each letter on the printed page to its appropriate form by writing such assignment beneath each, to divide the whole into groups of five, and by reference to the aforementioned code to ascertain whether the letters represented by such groups, when assembled in their sequence, spelled anything intelligible.

It was plain that if Bacon's cipher as propounded and explained by himself had been incorporated in any existing book it would be necessary that a search for it should be controlled by each of the foregoing principles. The main difficulties confronting the investigator were two: (1) to ascertain the presence of the two forms of type, and if this was proved, then (2) to determine by laborious experimenting which form was to be regarded as the *a* form, and which the *b* form. Upon a correct solution of this matter would depend the determination of the momentous question of whether a cipher message was really embodied or infolded in the printed page.

Here then was a difficulty of staggering proportions encountered at the outset. The first glad realization of the vast possibilities for investigation involved in Bacon's declaration had made the task seem easy. The principle of the application of the cipher was clearly stated by him. He had gone so far as to give the cipher code or key, and had explained how he applied it by the use of two forms of type. What would be easier than to work backwards, separate the type into its two forms, apply the code, or key, and read the result? It seemed so simple and plain in the light of the inventor's own explanation. But how to separate the type into its two forms—there was the rub! Which form was the *a* form, and which the *b* form?

Much thought suggested one principle on which experimental work might proceed. An examination of the cipher code, or key, offered by Bacon, showed that the total number of *a*'s utilized in the combinations for the twenty-four letters of the alphabet (the *i* and *j*, and the *u* and *v*, being respectively regarded as one letter) was 69, and the total number of *b*'s 51. On this slender fact the assumption was predicated that since the *a*'s were used more frequently than the *b*'s in the code, that type form which occurred in the printed page with the greater frequency would prove to be the *a* form—provided always that the printed page proved to contain the cipher described by Bacon.

Up to this point, however, Mrs. Gallup had achieved nothing of practical value toward a solution of the problem, other than a compilation of a set of principles by which her future investigation should tentatively be con-

trolled. Consequent events proved the correctness of her method of reasoning by means of which these principles were evolved.

The next question to be settled was "Which of the printed works of Bacon's period should be examined to ascertain whether they contained a cipher?"

It was to the Shakespearean pages that the speculative theorists and experimentalists had always turned when, for the amusement of themselves and a limited coterie of like-minded optimists, they had turned out their arbitrarily ingenious anagrams, etc. "Why not be bold," Mrs. Gallup asked herself, "and dig deep in the very mine where others have delved? Their failure to find anything except the product of their own imagination does not prove that the treasure is not there."

With the principle in mind that the cipher would be found in *italic* type, if at all (see principle 3 above), she turned to an original copy of the 1623 Folio edition of Shakespeare. The page containing the "Prologue" to the play of *Troilus and Cressida*, and the page containing the "Digges Poem" and the "I. M. Poem" forced themselves on her notice as being wholly in *italic* type (unlike most others in the volume). Further examination showed that the "Prologue" page was printed in type, some of the letters of which were obviously in two different forms. In the light of the principles she had laid down for her guidance, this page seemed to hold promising possibilities, and accordingly the "Prologue" was determined upon as the first point of attack. The wonderful instinct which, though ever held in check by rigidly scientific principles, had characterized Mrs. Gallup's work throughout, had again led her to take the right step at this critical juncture, as later events proved.

The first point of attack having been determined upon, there followed a long period of laborious experimentation, minute comparison of letters, and microscopical examination of their differences. If the existence of two forms of each letter were conceded *in theory*, it was fundamentally necessary to determine what were the distinguishing characteristics of each form and to ascertain whether they could be so declaratively determined to apply as to

enable each occurrence of a given letter to be assigned without any hesitation to the *a* or to the *b* form. The minute laboriousness, the sharpness of eye, and the retentiveness of memory indispensable to success in such an undertaking, were all brought to bear on the work by Mrs. Gallup with a quickened sense that she was entering on a virgin field of endeavor, that there were no precedents to guide her, and that success depended on the elimination of every possible element of error by the most patient experimentation and effort.

Mrs. Gallup's early tentative decision that that form of a letter which occurred with the greater frequency should be regarded as the *a* form was of little more than theoretical value, since in most cases the differences between the letters were so slight as to constitute the task of classifying them and assigning them to their respective forms one of enormous difficulty.

NOTE.—It may not be amiss to add a word of comment at this point. It should be clear that in order to *conceal* a cipher message in a printed page by means of the use of two forms of type, the letters of each form must necessarily have such a close *superficial* resemblance to each other as to deceive the eye of the casual and uninformed reader, else the very object of the cipher—concealment—would obviously be defeated. If the differences were apparent to the naked eye on a casual examination, it would be an easy matter for readers familiar with Bacon's contemporary work, in which he had promulgated both the principles and the key of the cipher, to apply the latter in deciphering the concealed message. The necessity then for the use of two forms of type, whose differences were minute, and not apparent to the casual observer, should be clear without further argument.

It is not exaggerating to assert that many days of labor were required to formulate the "alphabets" of the *a* and *b* form of each letter employed in the "Prologue" page. Frequently a letter would be assigned during the examination to the *a* or to the *b* form only to find that such assignment resulted in a combination which was meaningless, when the group of five to which it belonged was compared with the key. Further examination and comparison were then of course necessitated, and a redefinition of characteristics of the respective forms followed.

One by one the difficulties—sometimes apparently almost insurmountable obstacles—were overcome; order came out of chaos, principles of form, discoverable in each letter, were found—and the long hoped-for, laboriously

Transcription of Prologue  
to  
Troilus and Cressida  
Showing form to which each  
letter belongs, and the  
concealed message

# PROLOGUE TO TROILUS AND CRESSIDA

## SHAKESPEARE FOLIO 1623

ThePr	ologu	eINTR	oyThe	relye	stheS	ceneF	romIl	esofG	reccc	ThePr	inccc	Orgil	loust
aabab	baaaa	aaaaa	abbaa	aaaba	abaaa	baaab	baaab	baaba	aaaaa	ababa	aaaab	aaaaa	abbaa
heirh	ighbl	oodeh	afdHa	uetot	hePor	tofat	henss	entth	eirsh	ippes	Fraug	htwit	lthem
aabab	aaaba	baaab	aaaba	abaaa	abbba	aaab	aaaba	aaabb	aaab	baaaa	abbab	abbab	baaba
inist	ersan	dinst	rumen	tsOfc	ruell	Warre	Sixty	andni	netha	twore	Their	Crown	etsRe
aabbb	aaaba	ababb	abaaa	abbaa	aabbb	baaba	babba	aabbb	aaaba	baaaa	abbab	aaaba	baaab
gallf	romth	Athen	ianba	yPutf	ortht	oward	Pluryg	iaand	their	vowis	madeT	orans	ackeT
abbab	aabab	baaba	baaaa	abbab	babba	ababa	abbab	baabb	abaaa	abbaa	abbaa	aaaaa	abbaa
roywi	thinw	hoses	trong	emure	sTher	auish	dHele	nMene	lausQ	ueene	Withw	anton	Paris
aaabb	baaaa	aaaba	baabb	aaaba	baaaa	abaaa	abbaa	aaaba	baaba	aaabb	aaaba	baaab	aaaba
sleep	esand	thats	theQu	arrel	IToTe	nedos	theye	omcAn	dthed	ceped	rawin	gBark	edoth
abbaa	abbab	aaaab	ababa	aaaba	aaaaa	abbaa	aaaba	aaaba	baaab	baaba	abbab	baaaa	baaab
eredi	sgorg	eThei	rwarl	ikefr	autag	enowo	nDard	anPla	inesT	hefre	shand	yetyn	bruiss
aabbb	baaaa	aaabb	abaaa	abbba	aabbb	abaaa	baaab	baaba	baaaa	abaaa	baaba	abaaa	abbba
edGre	ekesd	opite	hThei	rbrau	ePau	llion	sPria	msix	gated	CityD	ardan	andTi	mbria
abbba	baaab	aabbb	abbab	ababb	aaaba	baaaa	baaab	abaaa	ababa	ababa	abaaa	aaaaa	aaabb
Helia	sChet	asTro	ienAn	dAnte	nonid	uswit	lmass	ieSta	plesA	ndcor	respo	nsiue	andfu
baaab	aaaaa	abbba	aaabb	abbab	aaabb	babba	baaab	baaab	aaaba	babba	abaaa	abbba	aaaba
lfill	ingBo	ltsSt	irrev	ptheS	onnes	ofTro	yNowE	xpect	ation	tickl	ingsk	ittis	hspir
abaaa	abbba	aabbb	aaaba	baaaa	baaba	abaaa	baaba	aabbb	baaba	aabbb	aaaba	aaaaa	aaaba
itsOn	onean	dothe	rside	Troia	nandG	reeke	Setsa	llonh	azard	Aadhi	thera	mJcom	eAPro
abbba	aaaba	abaaa	aaabb	abbab	aaab	baaba	aabbb	aaaba	abbba	abbab	aaaab	ababa	aaaba
logie	armdb	utnot	incon	fiden	ecOfA	uthor	speno	rActo	rsvoy	cebut	suite	dJnli	kecon
baabb	baaaa	baaaa	aaaba	abaaa	ababa	abbba	baaaa	abaaa	abbba	aaaba	aaaba	abbab	aaab
ditio	nsaso	urArg	ument	Totel	lyouf	aireB	ehold	ersth	atour	PlayL	capcs	oreth	evaun
ababa	aaaaa	baaba	abaaa	abbba	abbba	abbab	aaaba	baaba	baaab	abaaa	abbba	baaab	aaaba
tandf	irstl	ingso	fthos	ebroy	lesBe	ginni	ngint	hemid	dlest	artin	gthen	ceawa	yTowh
baaaa	abaaa	aaaab	abaaa	abbba	aaaba	baaba	aabbb	aaaba	ababa	aaaba	baaba	baaba	aaaba
atmay	bedig	ested	inaPl	ayLik	corfi	ndefa	ultdo	asyou	rplea	sures	areNo	wgood	orbad
baaaa	baaab	baaba	abbab	aaaba	ababa	abaaa	babbb	aaaaa	aaaab	aaaba	baaba	aabbb	baaaa
tisbu	tthree	hance	ofWar	re									
aaab	baaab	baaba	aaaaa										

## Deciphered Message

Francis St. Alban, descended from the mighty heroes of Troy, loving and revering these noble ancestors, hid in his writings Homer's Illiads and Odyssey (in Cipher), with the AEneid of the noble Virgil, prince of Latin poets, inscribing the letters to Elizabeth, R.

sought-for treasure finally showed itself to the delighted eyes of this patient prospector.

With each letter classified as to its *a* or its *b* form, the procedure of deciphering was a simple step forward. Under each letter of the original text was written the *a* or the *b* designating the form to which it belonged, and the whole was then divided off into groups of five, each such group of *a*'s and *b*'s representing one letter as shown in Bacon's cipher key (see page 4). Facing this page is a transcription of the "Prologue" arranged in groups of five; beneath each letter is the *a* or the *b*, to which form such letter belongs. Each such combination or group will be found to represent a corresponding letter in the cipher key. This is shown in order to enable the reader to follow the method of deciphering—simple enough when the difficult preliminary step already described of assigning the letters to their respective class has been accomplished.

## Appendix

The exhibits, miniatures of which are found in this pamphlet, are designed to assist the serious student in traversing the path so laboriously, yet ingeniously, pursued by Mrs. Gallup in her pioneer work. In Plate I, the "Digges" and the "I. M. Poem" have been dissected and analyzed, and their letters classified. These poems were selected for the purpose (1) because they are printed in italic in the original (a basic condition precedent, according to the hint offered by Bacon himself for the incorporation and consequent decipherment of a cipher), and (2) because being short they permitted of exhaustive analysis *in their entirety* within the limits of the exhibit. The plates should be examined from the top downward, beginning at the left, and proceeding in like manner with each column. Each illustration in the plate will explain itself, and should be studied minutely and exhaustively before passing from one to the next. The third and fourth columns of Plate I will each be found, when taken together, to present the "I. M. Poem" as a whole. Three illustrations in each case were necessary, since in each individual illustration only every third letter is illustrated, and compared (in column 3) or contrasted (in column 4) with the typical letter of its own, or of the opposite form. An intelligent following of the translation of the "I. M. Poem" (foot of column 2) and of the "Digges Poem" (foot of column 6) will be greatly facilitated by reference to the cipher key, given on page 4 of this pamphlet.

In like manner a dissection of the "Prologue," of the "Catalogue," of the list of "Principall Actors," and of a page from "Love's Labour's Lost" is presented in Plate II. Each illustration merits careful study in the light of the principles enunciated above, and each will be found of service in fixing the characteristics of the type forms in the student's mind.

The second illustration in column 6, Plate II, is deemed important in that it shows how Ignatius Donnelly, probably the most celebrated—as well as the most ridiculed—of the would-be decipherers of the Shakespearean pages, was actually knocking at the door of a great discovery, but fumbled and



failed, although already on the threshold, to find the true combination which would unlock the safe in which the treasure lay. It furnishes an instructive comparison between his unproductive labors and the scientific results achieved by Mrs. Gallup.

Accompanying this pamphlet are cards designated as "Classifiers." The purpose for which these have been prepared is to assist the student in examining and classifying the printed italic type of the Shakespearean page. When the slot of the Classifier is placed over any line of the original the blank space permits an examination of the line thus exposed. The letters above and below the blank then serve to show the typical or characteristic form of the *a* or *b* font. Thus a comparison of a given letter on the original page with its typical *a* or *b* form on the Classifier will enable the student with little difficulty to determine the form to which the letter examined belongs. The use of these Classifiers will be found of great value in fixing in the student's memory the characteristics of the two forms, which will result in the facilitating his marking of the original, and of reaching the consequent decipherment by his own efforts.

Plate III has no apparent, direct connection with the Biliteral Cipher. Yet it is exhibited here for a highly important purpose, which is now to be explained. The connection will then, it is hoped, be clear.

In the citation from Bacon's *De Augmentis Scientiarum* given on p. 4 above is the following language: "Let us proceed then to Ciphers. Of these there are many kinds; . . . ciphers containing two different letters in one character [i.e., the Biliteral Cipher]; wheel-ciphers; key-ciphers; word-ciphers, and the like." The Biliteral Cipher, as has been shown above, is explained and the key thereto is furnished by Bacon in his "open" or acknowledged work. Years of labor on the Biliteral Cipher and of deciphering the hidden messages concealed by means of it have produced, among other things, the directions for the use and "unraveling" of the Word Cipher. In other words, unlike the Biliteral Cipher, the Word Cipher is not explained by Bacon in his open works, but is alluded to only. The directions for its use—and consequent decipherment—are concealed in

the biliteral pages of Bacon's concealed works, and, as deciphered by means of the Biliteral Cipher there contained, they read as shown in Plate III, illustration 7.

An examination of Plate III, illustration 6, discloses the following translation of the Biliteral Cipher concealed in the Prologue: "Francis St. Alban, . . . hid in his writings Homer's *Iliad* . . ."

Plate III, therefore, if its several illustrations are examined in the light of the foregoing, will be found to contain: (1) an assertion of the "hiding" of the *Iliad*, "in cipher" (illustration 6); (2) directions for following the Word Cipher (illustration 7); (3) "guides" referred to in the directions, and constituting an essential element in deciphering; (4) a page from the play of *Troilus and Cressida*, showing passages, words, and phrases inclosed in black lines, and constituting those (on that page) demanded by the rules of the Word Cipher for the translation of the *Iliad*; (5) passages of the translation of the *Iliad*, of the Continuation of the *New Atlantis*, of the *Tragedy of Anne Boleyn*, and of the play of *Sejanus*, all obtained through the Word Cipher.

For our present purpose the importance of these incomplete selections lies in the fact that they could never have been extracted or deciphered had not the directions for so doing been discovered through the Biliteral Cipher. The latter, therefore, is the fundamental keystone of the arch or entrance through which we may gain access to a garden whose flowers are choice and rare, but which until now have remained strange and unknown to us. The *New Atlantis* in its unfinished state has been the despair of students of Bacon. The completion is now accessible through the Biliteral and Word Ciphers. Plays, tragedies, translations of the *Iliad*, the *Odyssey*, and the *Aeneid*, transcending in sonorous diction and impressive verbiage any English translation known (and *not* "that by Chapman," as hinted by Professor Pierce), have lain buried for three hundred years. As a result of Mrs. Gallup's labors, some have already been completely mined and extracted; others are in process of decipherment.

A vast amount of work has been done. More remains yet to be done. The Biliteral Cipher is the gateway to it all.

If the foregoing will serve to awaken an interest in, and to promote a study of, the subject, the cause of English literature will be advanced its enrichment is assured.

It remains only to add that all the pages dissected in these plates are photographed from genuine originals of the 1623 Folio, and represent the actual appearance of the printed page. The Shakespearean student is, of course, familiar with the fact that the process of type-casting as well as that of printing was more or less crude and primitive in the early part of the seventeenth century. The mold from which the type was cast was held in the hand; the molten metal was poured in, and hand pressure was exerted in forming the letter. The type page was inked by hand for each impression; the ink being applied to the type by balls of wool, which distributed the ink in uneven quantity—sometimes in clots, sometimes heavily, sometimes lightly, always irregularly. The paper was moistened before receiving the impression, and this was irregularly accomplished, one part of the sheet often being less damp than another part, resulting in greater contraction in some places than in others in the process of drying. All these facts should be kept in mind as important details when examining the letters of each form, and particularly when examining column 5 of Plate I. They will be found to account for the apparent lack of resemblance of some of the grouped letters. The use of a magnifying glass will assist in showing that the *apparent* points of difference between letters clearly of the same *general* characteristics are accountable for by one or more of the facts detailed above.

The plates inserted in this book are miniatures of originals designed for hanging in libraries. A magnifying glass will make it possible to read the miniatures. Inquiries about the large plates may be addressed to Riverbank Laboratories, Geneva, Illinois.

## Notice

It is a serious misfortune to the cause of literature and of science that no organized body exists in the United States to which a literary, historical, or scientific question may be submitted, as to the Academie Française in France.

Not only do we lack the larger and more comprehensive body, but we have no National Association of those to whom Bacon's works, his history, his thoughts and his aims are a subject of study and discussion.

With the object of establishing a common meeting-ground for all such students, of furthering research in the subject presented in this pamphlet, and of providing a literary clearing-house for the promulgation of the results of research in the general field of Baconian literature,

### The American Academy of Baconian Literature

has been founded with a temporary organization to conduct its affairs until, through a general meeting of its members, a permanent organization can be effected. Those interested are urged to address, for all information,

THE AMERICAN ACADEMY OF BACONIAN LITERATURE,  
Riverbank, Geneva, Illinois.

Miniatures of Plates  
referred to throughout the text as  
Plates I, II and III.

A magnifying glass will assist in reading these miniatures  
Regarding full-size exhibits of these plates  
see last paragraph on p. 13.







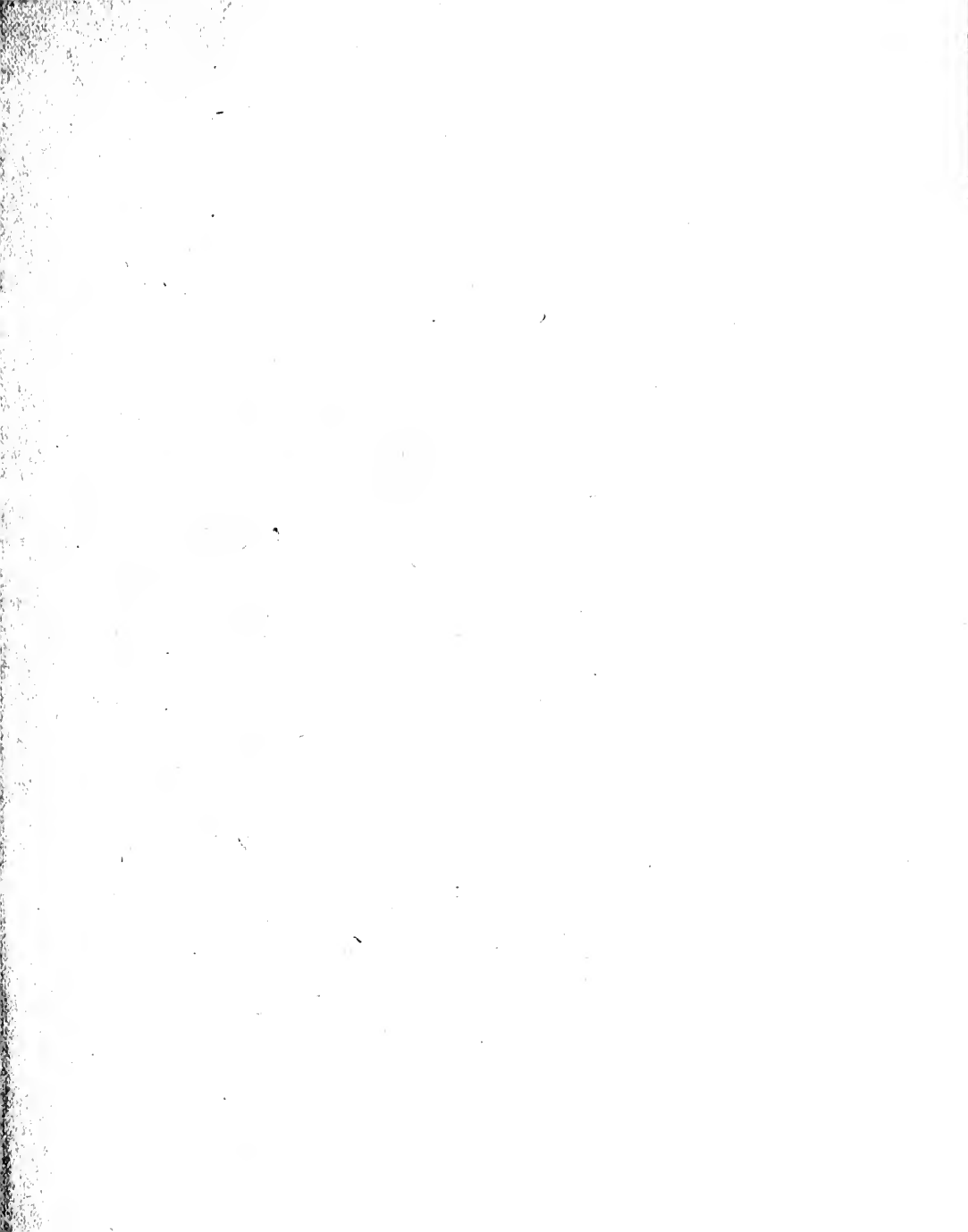














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